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## Table of Contents

<b>1.</b>	<b>Overview of Process .....</b>	<b>1-1</b>
1.1	Application Checklist.....	1-3
1.2	Types of Approval .....	1-4
1.2.1	Full Approval & Re-Approval of Compliance Software .....	<del>1-5</del> <b>1-4</b>
1.2.2	Approval of New Features & Updates .....	1-5
1.3	Challenges .....	<del>1-6</del> <b>1-5</b>
1.4	Alternative Compliance Software Program Tests .....	<del>1-6</del> <b>1-5</b>
1.5	Decertification of Compliance Software Programs .....	1-6
1.6	NACM Reference Manual .....	<del>1-8</del> <b>1-7</b>
<b>2.</b>	<b>Required Compliance Software Capabilities .....</b>	<del>2-8</del> <b>2-7</b>
<b>3.</b>	<b>Optional Capabilities .....</b>	<b>3-8</b>
3.1	Vendor Defined Optional Capabilities .....	<del>3-9</del> <b>3-8</b>
<b>4.</b>	<b>User's Manual and Help System Requirements .....</b>	<b>4-9</b>
<b>5.</b>	<b>Reference Method Comparison Tests .....</b>	<del>5-10</del> <b>5-9</b>
<b>6.</b>	<b>Vendor Requirements .....</b>	<del>6-10</del> <b>6-9</b>
6.1	Availability to Commission .....	<del>6-10</del> <b>6-9</b>
6.2	Enforcement Agency Support.....	6-10
6.3	User Support.....	6-10
6.4	Compliance Software Vendor Demonstration.....	6-10

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# 1. Overview of Process

This NACM Approval Manual explains the requirements for approval of Alternative Calculation Methods (also referred to as Ceompliance Ssoftware programs) used to demonstrate compliance with the Efficiency Standards for nonresidential buildings, hotels & motels, and high-rise residential buildings. The approval process for nonresidential Ceompliance Ssoftware programs is specified in Title 24, Part 1, §§ 10-101 through 10-110 of the California Code of Regulations. Nonresidential Ceompliance Ssoftware programs are used in the performance approach to demonstrate compliance with the Efficiency Standards for nonresidential buildings as outlined in Title 24, Part 6, Subchapter 5, § 140.1. The Energy Commission develops and implements the Efficiency Standards. In this manual the term "Efficiency Standards" means the Building Energy Efficiency Standards, Title 24, Part 6 of the California Code of Regulations. The term "compliance" means that a building design in an application for a building permit complies with the Efficiency Standards and meets the requirements described for building designs therein.

The purpose ~~and policy~~ of this Nonresidential Alternative Calculation Method (NACM) Approval Manual is to specify the California Energy Commission approval process for nonresidential Ceompliance Ssoftware ~~and to define the assumptions and procedures of the reference method against which compliance software will be evaluated~~. The performance compliance requirements and procedures apply to nonresidential buildings, hotels & motels, and high-rise residential buildings. A separate Residential ACM Approval Manual addresses low-rise residential buildings. ~~The procedures and processes described in this manual are designed to preserve the integrity of the performance compliance process.~~

~~The reference procedures and method described in this manual establish the basis of comparison for all compliance software.~~ The approval process ensures that a minimum level of energy efficiency is achieved regardless of the Ceompliance Ssoftware program used. This is accomplished by the following:

- ~~Each by having candidate~~ Ceompliance Ssoftware program must pass a series of Reference Method comparison tests;
- Specific modeling rules must be implemented within each Compliance Software program;
- Each Compliance Software program must pass a series of tests proving that these modeling rules have been implemented correctly to generate the proposed building design and the standard building design;
- ~~by specifying input which may be varied in the compliance process for credit and which inputs are fixed or restricted;~~
- ~~by defining S-standard reports output reporting~~ requirements;
- ~~C by compliance Ssoftware vendor~~ certification to the requirements in this NACM Approval Manual.

~~The Rreference Mmethod includes is a set of reference modeling inputs and results. The Reference Method, the specific modeling rules to generate the proposed and standard building designs and the Compliance Software certification tests are all reference procedures~~ described in the NACM Reference Manual.

Optional capabilities are a special class of capabilities and user inputs that are not required of all Ceompliance Ssoftware but may be included at the option of the vendor. The optional capabilities included in the NACM Reference Manual have minimal testing requirements. Additional optional capabilities may be proposed by vendors. For both cases, the Commission reserves the right to disapprove the certification application for a specific optional capability if there is not compelling evidence presented showing that the optional capability is sufficiently accurate and suitable to be used for compliance with the Efficiency Standards. In addition, energy efficiency measures modeled by optional capabilities shall be capable of being verified by local enforcement agencies.

The Commission's purpose in approving additional optional capabilities is to accommodate new technologies which have only begun to penetrate the market and to accommodate new modeling algorithms. ~~Optional capabilities which evaluate measures already in relatively common use shall have their standard~~

~~design for the measure based on the common construction practice (or the typical base situation) for that measure since common practice is the inherent basis of the Efficiency Standards for all measures not explicitly regulated. For example, the Commission has no interest in an optional capability that evaluates the energy impacts of dirt on windows unless a new technology produces substantial changes in this aspect of a building relative to buildings without this technology. The burden of proof that an optional capability should be approved lies with the applicant and will be influenced by the ability to test the optional capability as a part of the reference method.~~

Companion documents which are either essential or helpful to prepare Ceompliance Ssoftware for certification include the latest editions of the following Commission publications:

- Nonresidential ACM Reference Manual
- *Energy Efficiency Standards*
- *Appliance Efficiency Regulations*
- *Nonresidential Compliance Manual*
- *Reference Nonresidential Appendices*
- *Reference Joint Appendices*

~~In this manual the term "Efficiency Standards" means the Building Energy Efficiency Standards, Title 24, Part 6 of the California Code of Regulations. The term "compliance" means that a building design in an application for a building permit complies with the "Efficiency Standards" and meets the requirements described for building designs therein.~~

- *Compliance Options Approval Manual for the Building Energy Efficiency Standards*

There are a few special terms that are used in this manual. The Commission **approves** the use of Ceompliance Ssoftware for compliance. Commission approval means that the Commission accepts the applicant's certification that Ceompliance Ssoftware meets the requirements of this NACM Approval Manual. The proponent of candidate compliance software is referred to as a **vendor**. The vendor shall follow the procedure described in this document to publicly certify to the Commission that the Ceompliance Ssoftware meets the criteria in this document for:

- *Accuracy and reliability* when compared to the Rreference Mmethod; and
- *Suitability* in terms of the accurate calculation of the correct energy budget, the printing of standardized forms, and the documentation on how the program demonstrates compliance.

In addition to explicit and technical criteria, Commission approval will also depend upon the Commission's evaluation of:

- *Enforceability* in terms of reasonably simple, reliable, and rapid methods of verifying compliance and application of energy efficiency features modeled by the Ceompliance Ssoftware and the inputs used to characterize those features by the Ceompliance Ssoftware users; and
- *Dependability* of the installation and energy savings of features modeled by the Ceompliance Ssoftware. The Commission will evaluate the probability of the measure actually being installed and remaining functional. The Commission shall also determine that the energy impacts of the features that the Ceompliance Ssoftware is capable of modeling will be reasonably accurately reflected in real building applications of those features. In particular, it is important that the Ceompliance Ssoftware does not encourage the replacement of actual energy savings with theoretical energy savings due to tradeoffs allowed by the Ceompliance Ssoftware.

For the vendor, the process of receiving approval of Ceompliance Ssoftware includes preparing an application, working with the Commission staff to answer questions from either Commission staff or the public, and providing any necessary additional information regarding the application. The application includes the four basic elements outlined below. The Commission staff evaluates the Ceompliance Ssoftware based on the completeness of the application and its overall responsiveness to staff and public comment.

The four basic requirements for approval include:

1. Required capabilities:

- Compliance software shall have all the required input capabilities explained in Chapter 2.
- Compliance software may be approved for additional optional capabilities such as those described in Chapter 3.

2. Accuracy of simulation:

- ~~• The compliance software shall demonstrate acceptable levels of accuracy by performing and passing the required certification tests discussed in Chapter 5.~~
- The Compliance Software vendor performs the certification tests in Chapter 5. The vendor conducts the specified tests, evaluates the results and certifies in writing that the Compliance Software passes the tests. The Commission will perform spot checks and may require additional tests to verify that the proposed Compliance Software is appropriate for compliance purposes.
- When energy analysis techniques are compared, two potential sources of discrepancies are the differences in user interpretation when entering the building specifications, and the differences in the compliance software's algorithms (mathematical models) for estimating energy use. The approval tests minimize differences in interpretation by providing explicit detailed descriptions of the test buildings that must be analyzed. For differences in the Compliance Software's algorithms, the Commission allows algorithms that yield equivalent results.

3. User's Manual or Help System:

- The vendor shall develop a user's manual and/or help system that meets the specifications in Chapter 4.

4. Program support:

- The vendor shall provide ongoing user and enforcement agency support as described in Chapter 6.

The Commission may hold one or more workshops with public review and vendor participation to allow for public review of the vendor's application. Such workshops may identify problems or discrepancies that may necessitate revisions to the application.

Commission approval of Compliance Software programs is intended to provide flexibility in complying with the Efficiency Standards. However, in achieving this flexibility, the Compliance Software shall not degrade the Efficiency Standards or evade the intent of the Efficiency Standards to achieve a particular level of energy efficiency. The vendor has the burden of proof to demonstrate the accuracy and reliability of the Compliance Software relative to the Reference Method and to demonstrate the conformance of the Compliance Software to the requirements of this NACM Approval Manual.

## 1.1 Application Checklist

The following items shall be included in an application package submitted to the Commission for Compliance Software approval:

- **Compliance Software Vendor Certification Statement.** A copy of the statement contained in NACM Reference Manual Appendix A, signed by the Compliance Software vendor, certifying that the Compliance Software meets all Commission requirements, including accuracy and reliability when used to demonstrate compliance with the Efficiency Standards.
- **Computer Runs.** Copies of the computer runs ~~with content and format as specified in Chapter 5 of the NACM Reference Manual on machine readable form as specified in Chapter 5 of the NACM Reference Manual to enable verification of the runs.~~

- **Compliance Supplement and User's Manual.** The vendor shall submit a complete copy of their Compliance Software user's manual, including material on the use of the Compliance Software for compliance purposes.
- ~~**Copy of the Compliance Software and Weather Data.** An operational version machine-readable copy of the Compliance Software for random verification of compliance analyses. The vendor shall provide weather data for all 16 climate zones.~~
- ~~**TDV Factor Documentation.** The compliance software shall be able to apply the TDV multipliers described in Reference Joint Appendix JA3.~~
- **Application Fee.** The vendor shall provide an application fee of \$2,000.00 (two thousand dollars) as authorized by § 25402.1(b) of the Public Resources Code, made out to the "State of California" to cover costs of evaluating the application ~~and to defray reproduction costs.~~

A cover letter acknowledging the shipment of the completed application package should be sent to:

Executive Director  
California Energy Commission  
1516 Ninth Street, MS-39  
Sacramento, CA 95814-5512

Two copies of the full application package should be sent to:

Compliance Software Nonresidential Certification  
California Energy Commission  
1516 Ninth Street, MS-26  
Sacramento, CA 95814-5512

Following submittal of the application package, the Commission may request additional information pursuant to Title 24, Part 1, § 10-110. This additional information is often necessary due to complexity of Compliance Software. Failure to provide such information in a timely manner may be considered cause for rejection or disapproval of the application. A resubmittal of a rejected or disapproved application will be considered a new application, including a new application fee.

## 1.2 Types of Approval

This NACM Approval Manual addresses two types of compliance software approval: full program approval (including amendments to programs that require approval), and approval of new program features and updates.

If compliance software vendors make a change to their programs as described in Sections 1.2.1 or 1.2.2, the Commission shall again approve the program. Additionally, any Compliance Software ~~program~~ change that affects the energy use calculations for compliance, the modeling capabilities for compliance, the format and/or content of compliance forms, or any other change which would affect a building's compliance with the Efficiency Standards requires another approval.

Changes that do not affect compliance with the NACM Approval Manual such as program changes to the user interface may follow a simplified or streamlined procedure for approval of the changes. To comply with this simpler process, the Compliance Software vendor shall certify to the Commission that the new program features do not affect the results of any calculations performed by the program, shall notify the Commission of all changes and shall provide the Commission with one updated copy of the program and User's Manual. Examples of such changes include fixing ~~logical~~ errors in computer program code that do not affect the numerical results (bug fixes) and new interfaces.

The Nonresidential ACM Reference Manual shall be updated by the Commission as needed. The Commission may approve a method of calculation or an algorithm to replace any method or algorithm that is found to be inadequate or inaccurate for satisfying the performance compliance requirements of the standards. Changes to

the Nonresidential ACM Reference Manual that are found to alter the compliance process or otherwise affect a building's compliance with the Standards may necessitate the Commission to require all certified programs be submitted for re-approval to meet the revised compliance requirements as established by the Nonresidential ACM Reference Manual. The Executive Director shall publish these findings containing the determinations made by the Commission pursuant to the requirements established by the administrative code (Title 24, Part 1 § 10-109).

### 1.2.1 Full Approval & Re-Approval of Compliance Software

The Commission requires program approval when ~~submitted a candidate~~ Compliance Software has never been previously approved by the Commission, when the Compliance Software vendor makes changes to the program algorithms, or when any other change occurs that in any way affects the compliance results. The Commission may also require that all currently approved Compliance Software be approved again whenever substantial revisions are made to the Efficiency Standards or to the Commission's approval process.

The Commission may change the approval process and require that all compliance software be approved again for several reasons including:

- a) If the Efficiency Standards, ~~or NACM Approval Manual~~ or NACM Reference Manual undergo a major revision that alters the basic compliance process, then Compliance Software would have to be updated and re-approved for the new process.
- b) If new analytic capabilities come into widespread use, then the Commission may declare them to be required Compliance Software capabilities, and may require all Compliance Software vendors to update their programs and submit them for re-approval.

When re-approval is necessary, the Commission will notify all Compliance Software vendors of the timetable for renewal. There will also be a revised *NACM Approval Manual* published with complete instructions for re-approval.

A Compliance Software program must be re-approved for new optional modeling capabilities when the vendor adds those optional capabilities. The vendor shall provide a list of the new optional capabilities and demonstrate that those capabilities are documented in revised user documentation. This may not include computer runs previously submitted.

Re-approval shall be accompanied by a cover letter explaining the type of amendment(s) requested and copies of other documents as necessary. The timetable for re-approval of amendments is the same as for full program approval.

### 1.2.2 Approval of New Features & Updates

~~Certain types of changes may be made to previously approved nonresidential compliance software through a streamlined procedure, including implementing a computer program on a new machine and changing executable program code that does not affect the results.~~

Modifications to previously approved compliance software including new features and program updates are subject to the following procedure:

- The compliance software vendor shall prepare an addendum to the Compliance Supplement or Compliance Software user's manual, when new features or updates affect the outcome or energy efficiency measure choices, describing the change to the Compliance Software. If the change is a new modeling capability, the addendum shall include instructions for using the new modeling capability for compliance.
- The Compliance Software vendor shall notify the Commission by letter of the change that has been made to the Compliance Software. The letter shall describe in detail the nature of the change and why it is being made. The notification letter shall be included in the revised Compliance Supplement or Compliance Software user's manual.



- The Compliance Software vendor shall provide the Commission with an updated copy of the Compliance Software and include any new forms created by the Compliance Software (or modifications in the standard reports).
- The Commission will respond within 45 days. The Commission may approve the change, request additional information, or refuse to approve the change or require that the Compliance Software vendor make specific changes to either the Compliance Supplement addendum or the compliance software program itself.

With Commission approval, the vendor may issue new copies of the Compliance Software with the Compliance Supplement addendum and notify Compliance Software users and building officials.

### 1.3 Challenges

Building officials, program users, program vendors, Commission staff or other interested parties may challenge any nonresidential Compliance Software approval. If any interested party believes that ~~a compliance program~~, an algorithm or method of calculation used in a Compliance Software program, ~~a particular capability or other aspect of a program provides inaccurate results or results which~~ does not conform to the test criteria described in Section 5.1.4 of the NACM Reference Manual, the party may initiate ~~the a challenge to of~~ the Compliance Software program. ~~S(Please see Ssection 1.5 Decertification of Compliance Software Programs for a description of the process for a challenge.)~~

### 1.4 Alternative Compliance Software Program Tests

~~IChapter 5 of t~~ the NACM Reference Manual contains a series of tests to verify that Compliance Software accurately demonstrate compliance. A Compliance Software vendor may propose alternate tests when the vendor believes that one or more of the standard tests are not appropriate for the Compliance Software. The Commission will evaluate the alternate tests and will accept them if they are found to ~~reflect be~~ acceptable engineering techniques.

If alternate tests are accepted by the Commission, the tests will be available for use by all Compliance Software programs. An alternate test will coexist with the standard test presented in the NACM Reference Manual until the NACM Reference Manual is revised. When a new version of the NACM Reference Manual is produced, the alternative test may be substituted for the current test or may continue to coexist with the original test.

### 1.5 Decertification of Compliance Software Programs

The Commission may *decertify* (rescind approval of) ~~an alternative calculation method~~ Compliance Software through the following means:

- All Compliance Software programs are decertified when the Efficiency Standards undergo substantial changes which usually occur ~~every three years~~ with each California Building Code update.
- Any Compliance Software can be decertified by a letter from the Compliance Software vendor requesting that a particular version (or versions) of the Compliance Software be decertified. The decertification request shall briefly describe the nature of the program errors ~~or "bugs" that~~ which justify the need for decertification.
- Any "initiating party" may commence a procedure to decertify ~~a~~ Compliance Software according to the steps outlined below. The intent is to include a means whereby unfavorable comparisons with the Reference Method, serious program errors, flawed numeric results, improper forms and/or incorrect program documentation not discovered in the certification process can be verified, and use of the particular Compliance Software version discontinued. In this process, there is ample opportunity for the

Commission, the Compliance Software vendor and all interested parties to evaluate any alleged problems with the Compliance Software program.

**NOTE 1:** The primary rationale for a challenge is unfavorable comparison with the Reference Method which means that for some particular building design with its set of energy efficiency measures, the Compliance Software fails to meet the criteria used for testing compliance software programs described in NACM Reference Manual Section 5.

**NOTE 2:** Flawed numeric results where the Compliance Software meets the test criteria used in NACM Reference Manual Section 5. In particular when Compliance Software indicates the failure of a building to comply by a significant margin even though the Reference Method indicates that the building complies, i.e., the Reference Method has a proposed design building energy budget less than or equal to the standard design building energy budget.

~~Compliance software is allowed to have inputs for energy efficiency measures that it cannot model. The proper method for a compliance software to accommodate such inputs and features is for the compliance software to automatically ensure compliance failure by a significant margin whenever that feature's inputs are entered by the user. In such cases numeric results are not directly relevant as long as the building fails to comply by an adequate margin. Lighting and receptacle/process loads however shall be within the numerically acceptable ranges.~~

~~A~~Following is a description of the process for challenging Compliance Software or initiating a decertification procedure follows:

1. Any party may initiate a review of Compliance Software's approval by sending a written communication to the Commission's Executive Director. (The Commission may be the initiating party for this type of review by noticing the availability of the same information listed here.)

The initiating party shall:

- a) State the name of the Compliance Software and the program version number(s) which contain the alleged errors;
  - b) Identify concisely the nature of the alleged errors in the Compliance Software which require review;
  - c) Explain why the alleged errors are serious enough in their effect on analyzing buildings for compliance to justify a decertification procedure; and,
  - d) Include appropriate data ~~on any media compatible with Windows XP or above~~ and/or information sufficient to evaluate the alleged errors.
2. The Executive Director shall make a copy or copies of the initial written communication available to the Compliance Software vendor and interested parties within 30 days.
  3. Within 75 days of receipt of the written communication, the Executive Director may request any additional information needed to evaluate the alleged Compliance Software errors from the party who initiated the decertification review process. If the additional information is incomplete, this procedure will be delayed until the initiating party submits complete information.
  4. Within 75 days of receipt of the initial written communication, the Executive Director may convene a workshop to gather additional information from the initiating party, the Compliance Software vendor and interested parties. All parties will have 15 days after the workshop to submit additional information regarding the alleged program errors.
  5. Within 90 days after the Executive Director receives the application or within 30 days after receipt of complete additional information requested of the initiating party, whichever is later, the Executive Director shall either:
    - a) Determine that the Compliance Software need not be decertified; or,
    - b) Submit to the Commission a written recommendation that the Compliance Software be decertified.
  - ~~6. The initial written communication, all other relevant written materials, and the Executive Director's recommendation shall be placed on the calendar and considered at the next business meeting after~~



~~submission of the recommendation. The matter may be removed from the consent calendar at the request of one of the Commissioners.~~

67. If the Commission approves the Compliance Software decertification, it shall take effect 60 days later. During the first 30 days of the 60-day period, the Executive Director shall send out a Notice to Building Officials and Interested Parties announcing the decertification.

All initiating parties have the burden of proof to establish that the review of alleged Compliance Software errors should be granted. The decertification process may be terminated at any time by mutual written consent of the initiating party and the Executive Director.

~~As a practical matter, the Compliance Software vendor may use the 180- to 210-day period outlined here to update the eCompliance Software program, get it re-approved by the Commission, and release a revised version that does not have the problems initially brought to the attention of the Commission. Sometimes the compliance software vendor may wish to be the initiating party to ensure that a faulty program version is taken off the market.~~

## 1.6 NACM Reference Manual

The Commission will approve ~~the~~ Nonresidential Alternative Calculation Method ACM Reference Manual as a guidance document for the implementation of this NACM Approval Manual. The NACM Reference Manual will set forth the specific modeling rules to be used by Compliance Software, how optional modeling capabilities shall be incorporated, and the details of the required help system must be included in Compliance Software. The NACM Reference Manual also sets forth the specific testing and reporting requirements that must be met by Compliance Software to be certified by the Energy Commission for use in the Building Energy Efficiency Standards compliance process.

Other technical details guiding the development, performance, and certification of Compliance Software may be added to the NACM Reference Manual, with approval of the Commission, as is necessary to achieve the goals of the Alternative Calculation Method Compliance Software approval process.

## 2. Required Compliance Software Capabilities

~~Chapter 2 of the NACM Reference Manual specifies required capabilities that Compliance Software must have will be tested for and specifies how the reference computer simulation program will be used for required modeling capabilities. All of the required capabilities are described in terms of the capabilities and algorithms of the Commission's reference program. Compliance Software shall provide account for the energy performance modeling effects of all of the features required capabilities described in Chapter 2 of the NACM Reference Manual.~~

~~The modeling procedures and assumptions described in Chapter 2 of the NACM Reference Manual apply to both the standard design and proposed design. The requirements for the standard design include those that compliance software shall apply to new features, altered existing features, unchanged existing features or all of the above. In order for compliance software to become approved, it shall, at a minimum, accept all of the required inputs and meet the test criteria when compared against the reference computer program using procedures and assumptions as required in the sections describing the capabilities.~~

## 3. Optional Capabilities

~~Candidate~~ compliance Software may have more capabilities than the minimum required. These optional capabilities can be approved for use with the Compliance Software for compliance purposes. Optional capabilities may not have specific capability tests in NACM Reference Manual ~~Chapter 5~~. Applicants wishing to receive approval for optional capabilities shall document the capability as required in NACM Reference Manual and be prepared to defend the technical accuracy of any optional modeling capabilities during the Compliance Software approval process.

The Commission does not require Ca-compliance Ssoftware to incorporate optional capabilities, ~~accept inputs for optional capabilities (except for optional compliance capabilities), or use optional capabilities procedures~~ in order to become certified. If Ca-compliance Ssoftware offers optional capabilities to the user, the specific capabilities shall be certified by the Commission and the Ca-compliance Ssoftware shall meet all special conditions, conform to all required calculation procedures, and pass certification tests (when applicable). The special conditions may include the ability to accept special input and produce special output. The assumptions for the optional capabilities shall be included in the vendor's submittal for optional capabilities as described later in this chapter. For the purpose of compliance, the use of any optional capability is considered an exceptional condition requiring special reporting on the certificate of compliance.

Optional capabilities and any non-required Ca-compliance Ssoftware inputs that modify Ca-compliance Ssoftware results in such a way that can result in the Ca-compliance Ssoftware failing to meet the approval criteria for any test in NACM Reference Manual ~~Chapter 5~~ are specifically prohibited, unless their use has been approved by the Commission as an optional capability. This is especially true for inputs and capabilities that ~~cannot be modeled using the reference computer program are not included in the Reference Method. This does not mean that compliance software may not differ in their inputs. For example, compliance software may accept wall heat capacity as an input, while another may use volume, density, and specific heat of the component wall materials to calculate the heat capacity, while another still may assume a heat capacity as a function of wall type. But no compliance software may have an input, for example, for mass of phase change material in the wall and material phase change temperature without specific prior written approval of that capability and its associated inputs, outputs, and internal defaults and restrictions.~~

If any optional capability is modeled, the option shall be specified on the appropriate compliance form which is automatically generated by the Ca-compliance Ssoftware. Additionally, any optional capability used in compliance shall be listed on the Certificate of Compliance as an exceptional condition.

The Ca-compliance Ssoftware approval application ~~(see NACM Reference Manual Appendix A)~~ shall list and describe (or reference the description in the ACM User's Manual) all optional capabilities which are certified for compliance.

### 3.1 Vendor Defined Optional Capabilities

Vendors may propose other optional capabilities not specifically described in this manual. In the proposal for vendor specified optional capabilities, the vendor shall include:

- Theoretical background and simulation algorithms
- Testing data and validation analysis for all specified capabilities
- Standard and proposed design assumptions
- Specific documentation requirements, addressing enforceability by building department personnel.

## 4. User's Manual and Help System Requirements

All NACM-Ca-compliance Ssoftware must include a user's manual and help system that are structured described in accordance with ~~Chapter 4 of~~ the NACM Reference Manual.

Each Ca-compliance Ssoftware vendor is required to publish a Ca-compliance Ssupplement or an independent user's manual which explains how to use the Ca-compliance Ssoftware for compliance with the Standards. The manual may also exist in electronic form, ~~either on the user's workstation or web-enabled~~. The document shall ~~deal with~~ explain the compliance procedures and user inputs to the Ca-compliance Ssoftware. Both the Compliance Software and the User's Manual and Help System shall positively contribute to the user's ability and desire to comply with the Standards and to the enforcement agency's ease of verifying compliance. The Compliance Software User's Manual and Help System should minimize or reduce confusion and clarify compliance applications. The Commission may reject Ca-compliance Ssoftware that has ~~whose~~ Compliance Software User's Manual and Help System that does not serve or meet these objectives.

## 5. Reference Method Comparison Tests

For Compliance Software to be certified by the Commission, the software must pass the Reference Method comparison test procedures set forth in ~~Chapter 5 of~~ the NACM Reference Manual.

This chapter explains the methods used to test the modeling and input capabilities of Compliance Software relative to the Reference Method ~~program~~. The Compliance Software shall be able to accept all required inputs but it need not be capable of modeling all features as long as it automatically fails proposed designs with features beyond its ~~accurate~~ modeling capabilities. For example, a simplified calculation method that ~~modeling~~ only single zone HVAC systems could be approved if it automatically fails proposed designs that enter multi-zone HVAC systems for the proposed design. For Compliance Software with limited capabilities, the vendor shall inform users that the Compliance Software is not capable of modeling certain features. ~~While most of the tests are performed in three climate zones, some of the tests use other climate zones.~~

~~There are a total of 76 specified tests. All the runs described in this chapter shall be performed with the compliance software, and run results shall be summarized on the forms contained in NACM Reference Manual Appendix A.~~

## 6. Vendor Requirements

Each Compliance Software vendor shall meet all of the following requirements as part of the Compliance Software approval process and as part of an ongoing commitment to users of their particular program.

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### 6.1 Availability to Commission

All Compliance Software vendors are required to submit at least one fully ~~working functional program~~ version of the Compliance Software to the California Energy Commission. An updated copy or access to the approved version of the Compliance Software shall be kept by the Commission to maintain approval for compliance use of the Compliance Software.

The Commission agrees not to duplicate the Compliance Software except for the purpose of analyzing it, for verifying building compliance with the Compliance Software, or to verify that only approved versions of the Compliance Software are used for compliance.

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### 6.2 Enforcement Agency Support

Compliance Software vendors shall provide a copy of the Compliance Software User's Manual and Help System to all enforcement agencies who request one in writing.

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### 6.3 User Support

Compliance Software vendors shall offer support to their users with regard to the use of the Compliance Software for compliance purposes. Vendors may charge a fee for user support.

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### 6.4 Compliance Software Vendor Demonstration

The Commission may request Compliance Software vendors to physically demonstrate their program's capabilities. One or more demonstrations may be requested before approval is granted.